

CLAIMS

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1. An apparatus for preparing soil for the placement therein of at least one of seed and fertilizer, said apparatus comprising:

a frame;

4 first means on the frame for penetrating the soil to create an opening for at least one of seed and fertilizer as the frame is advanced in a travel direction; and

6 second means on the frame at least partially downstream of the first means for at least one of a) stripping soil clods from the first means, and b) loosening soil
8 downstream of the first means,

10 whereby a loosened bed of soil can be defined for receipt of at least one of seed and fertilizer.

2 2. The apparatus for preparing soil according to claim 1 wherein the first means comprises a coulter.

2 3. The apparatus for preparing soil according to claim 2 wherein the coulter is in the form of a wheel.

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4. The apparatus for preparing soil according to claim 3 wherein the wheel is one of a wave and a ripple construction.

2 5. The apparatus for preparing soil according to claim 1 wherein the second means comprises a second wheel with there being third means mounting the second wheel to the frame for rotation about a horizontally extending axis.

6. The apparatus for preparing soil according to claim 1 wherein the second means comprises a second wheel with there being means mounting the second wheel to the frame so that the second wheel traces a path in rotation that coincides with the first means in the line of the travel direction for the frame.

^{6.6} 6. The apparatus for preparing soil according to claim ⁵ 6 wherein the first means comprises a first wheel that is rotatable about a horizontal axis.

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8. The apparatus for preparing soil according to claim 7 wherein said second means includes a third wheel with there being means mounting the third wheel to the frame so that the third wheel traces a path in rotation that coincides with the first means in the line of the travel direction for the frame.

9. The apparatus for preparing soil according to claim 8 wherein the second and third wheels comprise toothed wheels and the means mounting the second and third wheels to the frame mount the second and third wheels for rotation about axes that are transverse to each other and the rotational axis of the first wheel.

¹² 10. The apparatus for preparing soil according to claim ¹¹ 9 wherein the frame comprises a main part and a subpart, there are means mounting the frame subpart to the main frame part for relative vertical movement, and the means mounting the ^{first} ~~second~~ and ^{first} ~~third~~ wheels mounts the ^{first} ~~second~~ and ^{second} ~~third~~ wheels to the frame subpart, whereby the ^{second} ~~second~~ and ^{first} ~~third~~ wheels can be vertically repositioned relative to the ^{second} ~~first~~ wheel.

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 11. The apparatus for preparing soil according to claim 9 wherein the ~~first~~ ^{second} and third wheels rotate in planes that cooperatively produce a V-shape opening away from said travel direction for the frame and the ~~second~~ ^{first} and third wheels straddle at least a portion of the ~~first~~ ^{second} wheel.

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 12. The apparatus for preparing soil according to claim 1 in combination with fourth means on the frame for continuously defining an open slot in soil loosened by the second means for receipt of at least one of seed and fertilizer as the frame advances in a travel direction.

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 13. The apparatus for preparing soil according to claim 12 wherein the first and second means penetrate soil to a depth approximately equal to the depth of a slot in soil defined by the fourth means.

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 14. The apparatus for preparing soil according to claim 12 in combination with a fifth means on the frame for continuously delivering at least one of seed and fertilizer to soil and a sixth means for continuously placing soil in a slot defined by the fifth means as the frame is advanced in a travel direction.

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 15. The apparatus for preparing soil according to claim 10 wherein there are means cooperating between the ~~first~~ ^{second} wheel and the main frame part for varying the vertical position of the ~~first~~ ^{second} wheel relative to the main frame part.

Sub. A-2
 16. An apparatus for preparing soil for the placement therein of at least one of seed and fertilizer, said apparatus comprising:
 a frame;

4 first means on the frame for continuously parting the soil in an intended line
of introduction of at least one of seed and fertilizer; and

6 second means on the frame for loosening soil adjacent to the intended line
of introduction of at least one of seed and fertilizer,

8 whereby a loosened bed of soil can be defined for receipt of at least one of
seed and fertilizer.

2 17. The apparatus for preparing soil according to claim 16 in
combination with fourth means on the frame for continuously defining an open slot
in soil loosened by the second means for receipt of at least one of seed and
4 fertilizer as the frame advances in a travel direction.

2 18. The apparatus for preparing soil according to claim 17 wherein the
first means comprises a first wheel with there being means for mounting the first
wheel to the frame for rotation about an axis that is substantially perpendicular to
4 the travel direction, the second means comprises second and third wheels with
there being means for mounting the second and third wheels to the frame for
6 rotation about axes that are non-parallel to each other and non-parallel to the
rotational axis of the first wheel.

a 2 ¹⁸ 19. The apparatus for preparing soil according to claim ¹⁶ 17 in
combination with a ^{fourth} fifth means on the frame for continuously delivering at least
one of seed and fertilizer to soil loosened by the second means.

a 2 ¹⁹ 20. The apparatus for preparing soil according to claim ¹⁸ 19 in
combination with a ^{fifth} sixth means for continuously placing soil in a slot defined by
the first means as the frame is advanced in a travel direction.

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21. An apparatus for preparing soil for the placement thereon of at least one of seed and fertilizer, said apparatus comprising:

a frame;

4 first and second cooperating toothed wheels;

means for mounting the first and second toothed wheels to the frame so that
6 the first and second toothed wheels rotate in first and second vertically extending planes about first and second transverse axes to loosen soil;

8 means for supporting the frame at a predetermined height relative to subjacent soil supporting the frame; and

10 means on the frame for continuously defining an open slot in soil loosened by the first and second wheels as the frame is advanced in a travel direction,

12 said frame supporting means maintaining the frame at a height so that the slot defining means defines a slot having a first depth,

14 at least one of the first and second wheels penetrating soil to a depth at least equal to approximately said first depth.

22. The apparatus for preparing soil according to claim 21 wherein both
2 said first and second wheels penetrate soil to at least said first depth.

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23. The apparatus for preparing soil according to claim 21 wherein the first and second wheels rotate in first and second planes that cooperatively define a V shape opening in a trailing direction as the frame is travelling.

24. The apparatus for preparing soil according to claim 21 including
2 means cooperating between the frame and first and second wheels for varying the vertical position of the first and second wheels relative to the frame.

25. A method of preparing soil for the placement therein of at least one
2 of seed and fertilizer, said method comprising the steps of:

continuously cutting the soil in an intended line for the placement of at least
4 one of seed and fertilizer;

continuously loosening the soil on opposite sides of the intended seed line;
6 and

continuously defining an open slot for the placement of at least one of seed
8 and fertilizer in the loosened soil.

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